PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in Spring Hinges applicable to Clips, Cigarette Case Lids and the like

I, FRANK NOEL MALLETT, of 77, Upper Tollington Park, London, N.4, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention relates to fastenings and especially to such as are used upon so-called clip-brooches and similar jewellery.

The invention has among its objects to provide a spring fastening in which the spring used is completely enclosed and thus no projecting parts are involved in the construction that are liable to accidental engagement in articles of dress or otherwise; and in which the parts of the fastening in the open and closed positions are firmly held.

According to the invention one part of the fastening comprises an element having a substantially **U**-shaped cross-sectional form for the reception within it of a **C**-shaped leaf spring or the equivalent, while the other comprises a cam part adapted to close the substantially **U**-shaped cavity within the first part referred to. The cam is fixedly mounted upon a pin or spindle whose axis is disposed parallel with the substantially **U**-shaped cavity and the spring disposed therein and the inwardly extending part of the cam is provided of such an angular form that the spring contacts with the under face of the angular part in one or other of its alternative positions to hold the cam in those positions, so that if the pin or spindle on which the cam is mounted is connected to an outwardly extending arm, this arm is capable of being applied and held by pressure of the spring in one of two positions in substantially parallel or approximate relation to the part carrying the **U**-shaped cavity or at an obtuse angle thereto.

Such a construction is adapted for application to brooches as a means of firmly holding the article in position upon the dress. Such a fastening is also applicable to other purposes, such as cigarette boxes or covered watch cases, in all of which the movable part is firmly held in the closed or open position under the action of a strong spring that is completely enclosed.

The invention comprises constructions in which the parts employed may have different shape. Thus for example the substantially **U**-shaped cavity may be provided of any other form as a lengthwise cavity in which a curved leaf spring may be mounted in position while the cam referred to may be provided as an arm downwardly extending into that cavity and adapted to be moved on its axis into one or two positions adjacent the opposite lateral walls of the cavity.

In carrying the invention into effect according to one construction the **U**-shaped cavity may be formed in determined position at the back of the brooch to which it is to be applied and at each end the cavity may be closed by an end wall, and the respective end walls may serve as brackets to carry the respective ends of the hinging spindle or pin by which the cam or the equivalent may be mounted in parallel position with the curved leaf spring to extend the length of the cavity, and so that the ends of the cam may be disposed in contact with the inner faces of the end walls. By such means the cam or the equivalent substantially closes the mouth of the cavity in which the spring is set.

It will be understood that the cam or equivalent part may be integrally connected to or beneath the arm, tongue or frame piece and that the position of the angular part of the cam is such that on the arm or the equivalent being raised through an angle of 90° or more the angular part of the cam comes to lie in position against the inner wall of the cavity and in that position the outward thrust of the spring serves firmly to hold the arm or the equivalent in that open position, whereas on the arm being brought into its lowermost position with its end in contact with the rear face of the brooch or the equivalent the outward thrust of the spring serves firmly to hold the arm in that position and thus securely to retain the brooch upon the article of dress to which it is to be fastened.

It will be understood that in such a

construction the spring is completely enclosed and that there are no projecting parts that are liable to accidental engagement in articles of dress.

It will also be understood that such a spring fastening is adapted to a wide variety of purposes. Thus for example it may be employed for the purpose of connecting of parts of brooches or jewellery to a common frame or to serve as a means for connecting the parts of cigarette boxes or covered watch cases or the like.

It will be understood that the cam may be provided with a lengthwise angular part or with a number of angular parts and that the shape of the cavity enclosing the spring may be varied as well as the general construction, it being understood that the parts may be stamped out from metal or the parts may be connected together by hard solder.

Dated this 25th day of May, 1936.
EDWARD EVANS & CO.,
27, Chancery Lane, London, W.C.2,
Agents for the Applicant.

COMPLETE SPECIFICATION

Improvements in Spring Hinges applicable to Clips, Cigarette Case Lids and the like

I, FRANK NOEL MALLETT, of 77, Upper Tollington Park, London, N.4, a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to spring hinges and especially to such as are used upon so-called clip-brooches, and similar jewellery. The invention is also applicable to the lids of cigarette cases and the like.

The invention has among its objects to reduce the amount of the metal used, to avoid waste of metal by using wire or drawn metal, and to provide a spring hinge in which the spring used is completely enclosed and thus no projecting parts are presented that are liable to accidental engagement in articles of dress or otherwise; and in which the parts of the hinge in the open and closed positions are firmly held.

The invention relates to that kind of hinge in which two parts are hingedly connected together and held in contact or in their closed position by means of a spring.

According to the invention one of the parts of the spring hinge is formed at or adjacent and parallel with the hingeing axis with an elongated cavity or cavities in line, for the reception of a spring or springs and for the accommodation within the cavity or cavities of the adjacent end of the second and complementary part which is adapted to close the elongated cavity or cavities in line and to contact with the spring or springs in such position that the respective parts of the hinge are under the action of the spring or springs held in contact or in closed position.

In the application of the invention one part of the hinge comprises an element presenting a cavity for the reception within it of a **C**-shaped leaf spring or the equivalent, while the other comprises a contact part adapted to close a substantially **U**-shaped cavity within the first part referred to. The contact part is fixedly mounted upon a pin or spindle whose axis is disposed parallel with the cavity and the spring disposed therein, and the inwardly extending part of the contact part is provided of such an angular form that the spring contacts with the underface of the angular contact part in one or other of its alternative positions to hold the contact part in those positions, so that if the pin or spindle on which the contact part is mounted is connected to an outwardly extending arm of the fastening device, this arm is capable of being applied and held by pressure of the spring in one of two positions in substantially parallel or approximate parallel relation to the part carrying the cavity or at an obtuse angle thereto. Such a construction is adapted for application to brooches as a means of firmly holding the article in position upon the dress, and the movable or hingeing arm or part of the hinge may be made of wire of white gold, platinum or other precious or other metal of a gauge that ensures the rigidity of the part under conditions of use. By such means it is possible to form the hingeing arm or part referred to without cutting material from strip or plate metal and thus avoid waste of metal and reduce the amount of metal used. Such a hinge is also applicable to other purposes, such as clips, cigarette case lids and the like, in all of which the movable part is firmly held in the closed or open position under the action of a strong spring that is completely enclosed.

The invention comprises constructions

in which the parts employed may have different shape. Thus for example the cavity may be provided of a substantially U-shape or of any other form as a lengthwise cavity in which a spring may be mounted in position while the contact part referred to may be provided as an arm downwardly extending into that cavity and adapted to be moved on the hingeing axis into one of two lateral positions adjacent the opposite lateral walls of the cavity.

The invention is illustrated by way of example in the accompanying drawing, in which

Figure 1 is a plan view on an enlarged scale of a hinge constructed according to the invention that may be applied on the rear face of a brooch.

Figure 2 is a longitudinal section taken on the line 2—2 of Figure 1.

Figure 3 is a transverse section taken on the line 3—3 of Figure 2.

Figure 4 is a diagrammatic rear view of a two-piece brooch secured to a common frame.

Figure 5 is a diagrammatic section taken on the line 5—5 of Figure 4 in which one part of the two-piece brooch is shown vertically.

Figure 6 is a front view of one of the parts of a two-piece brooch detached from the common frame and shown fastened in position at the upper front part of a dress.

Figure 7 is a part longitudinal section on an enlarged scale of a box or container for cigarettes or for other purposes in which the lid is provided with a hinge according to the invention.

Figure 8 is a transverse section taken on the line 8—8 of Figure 7.

In carrying the invention into effect according to one construction as illustrated in Figures 1 to 3 of the accompanying drawings, the element a^1 presenting a U-shaped cavity is formed or provided in determined position at the back of the brooch to which it may be applied by hard soldering or otherwise, the brooch being represented by a rectangular part a which may be of any shape in outline. At each end the cavity in the element a^1 is closed by end walls a^2 that serve as bearing brackets for the respective ends of the hingeing spindle or pin b by which the contact arm or cam c or the equivalent is mounted in parallel position with the curved leaf spring d to extend the length of the cavity in the element a^1, and so that the end faces of the contact arm or the equivalent are disposed in contact with the inner faces of the end walls a^2 of the cavity. By such means the contact arm or cam c or the equivalent substantially closes the mouth of the cavity in the element a^1 in which the leaf spring d is set.

The contact arm or cam c or equivalent is integrally connected to or beneath the arm, tongue or frame piece e formed of wire of white gold platinum or other precious metals the end of which may be hard soldered, the wire frame piece e being similarly hard soldered to the contact arm or cam c, and the position of the angular part c^1 of the contact arm or cam c which is in contact with the upper face of the curved leaf spring d is such that on the arm e or the equivalent part being rotated through an angle of 90° or more about the hingeing spindle or pin b the angular part c^1 depresses the leaf spring d and comes to lie in position adjacent the inner wall a^3 of the element a^1 and in that position the outward thrust of the spring d serves firmly to hold the arm e or the equivalent in the open position. On the arm e or the equivalent being brought into its lowermost position with its end e^1 in contact with the rear face of the brooch or the equivalent represented by the part a, the outward thrust of the spring d serves firmly to hold the arm e or the equivalent in that position and thus securely to retain the part a of the brooch by clipping upon the article of dress to which it is to be fastened. The brooch or other jewellery or parts thereof may be provided as usual with rearwardly extending pins or projections integrally formed on the back face of the brooch or other part at a position opposite to or adjacent the part a as a means of engaging the fabric of the dress to which the brooch or parts may be applied.

It will be understood that in such a construction the spring d is completely enclosed and that there are no projecting parts that are liable to accidental engagement in articles of dress.

It will also be understood that such a spring hinge is adapted to a wide variety of purposes. Thus as illustrated in Figures 4 and 5 it may be employed for connecting parts of brooches to a common frame f for differently composing the brooch or other piece.

In the construction illustrated in Figures 4 to 6 the brooch is represented diagrammatically in external outline as two separate symmetrical parts h, h^1 each being provided with a spring-actuated movable arm e in the form of a rectangular frame of wire of white gold platinum or precious metal extending outwardly with the ends in contact with the respective rear faces of the parts h, h^1 of the brooch, and their opposite ends being hingedly connected to the respective parts h, h^1 of the brooch in the manner

described with reference to Figures 1 to 3. The parts h, h^1 of the brooch are mounted upon a separate common rectangular frame f, by the arms e being first opened out against the action of their springs d and then passed endwise into the rectangular frame f which is provided of such dimensions that the coincident edges of parts h, h^1 of the brooch are brought into contact, and in substantially co-planar disposition, whereupon the arms e are closed against the action of the springs d, thus firmly securing the respective parts h, h^1 together whereby a brooch of different composition is obtained. A pin and hook fastening i is integrally provided with the common rectangular frame f and may be used in such a case for attaching the brooch to a dress; a hinge constructed according to the invention may however be substituted.

As illustrated in Figure 6 one of the parts h may be disconnected from the common frame f and be fastened into position upon the neck portion of a dress.

In the application of the invention to the lids of boxes and other containers as illustrated in Figures 7 and 8 the box or container j has the lid j^1 thereof integrally formed with a number of contact parts c that form one part of a hinge, the contact parts c being mounted co-axially upon the hingeing pin l in position alternating with the corresponding parts of the hinge integrally formed on the housing n. The contact cam parts c and the co-operating springs d are accommodated within separate compartments n^1 formed by a number of transverse walls n^2 set in determined positions in the housing n which is formed at one end or side of the box or container j as illustrated.

It will be further understood that the part a^1 or a may be integrally formed with a brooch or other article of jewellery or it may be formed separately therefrom and adapted to be incorporated with the brooch or other article of jewellery so that the part a^1 or a with the part e attached may be firmly held upon the brooch or other article of jewellery.

It will be further understood that the contact arm or cam may be provided with a lengthwise angular part or with a number of angular parts and that the shape of the cavity enclosing the spring may be varied as well as the general form or construction, it being understood that the parts may be stamped out from metal or the parts may be connected together by hard solder or otherwise.

It will be understood that it is preferred ordinarily to provide the element or part a^1 as an integral part of the brooch or other piece of jewellery and to move the part c of the hinge in relation to the element or part a^1 in opening the clip into position in which it is held open by the angular part c^1 assuming the position opposite to that indicated in Figure 2. It will however be understood that the part a itself may be the movable part and the part e may be so provided in form as to serve as an integral foundation for the brooch or other piece of jewellery in which event the part a is formed of wire as a rectangular frame or a frame of other convenient form adapted to move on the pivot pin or spindle b.

The part c may be adapted to be held only in the closed position and not held in the open position. For this purpose the part c instead of being formed of an angular shape may have the cam surface so formed that the spring d is gradually depressed into the position corresponding to the extreme open position of the part e, whereby the part c is subject to the pressure of the spring in the extreme open position tending thus always to close the part e. It is however preferred that one of the parts shall be held both in the completely closed position and the completely open position.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A spring hinge of the kind in which two parts are hingedly connected together and held in contact or closed position by means of a spring, in which one of the parts is formed at or adjacent and parallel with the hingeing axis with an elongated cavity or cavities in line, for the reception within the cavity or cavities of a spring or springs as well as for the accommodation therein of the adjacent end of the second and complementary part which is adapted to close the elongated cavity or cavities in line and to contact with the spring or springs in such position that the respective parts of the hinge are under the action of the spring or springs held in contact or in closed position.

2. A spring hinge as specified in claim 1, in which the second part of the hinge is adapted whereby the respective parts of the hinge are held under the action of the spring or springs in the open position as well as in the closed position.

3. A spring hinge fastening device as specified in claim 1 or 2, in which the part of the hinge that is movable with respect to the brooch, clip, lid or the like to which the hinge is applied, is made of drawn metal or wire.

4. A spring hinge as specified in claim 1, 2 or 3 in which the part of the hinge that presents a cavity or cavities is provided with end walls through which the hinge pin or the equivalent passes by which the parts of the hinge are connected together.

5. A spring hinge as specified in claim 2 which is adapted to form the hinge for the lid or cover of a receptacle or container whereby the lid or cover is held in its closed or open position under the action of a spring.

6. A spring hinge substantially as hereinbefore described with reference to Figures 1 to 3 of the accompanying drawings.

7. A spring hinge substantially as hereinbefore described with reference to Figures 4 to 6 of the accompanying drawings.

8. A spring hinge substantially as hereinbefore described with reference to Figures 7 and 8 of the accompanying drawings.

Dated this 25th day of May, 1937.

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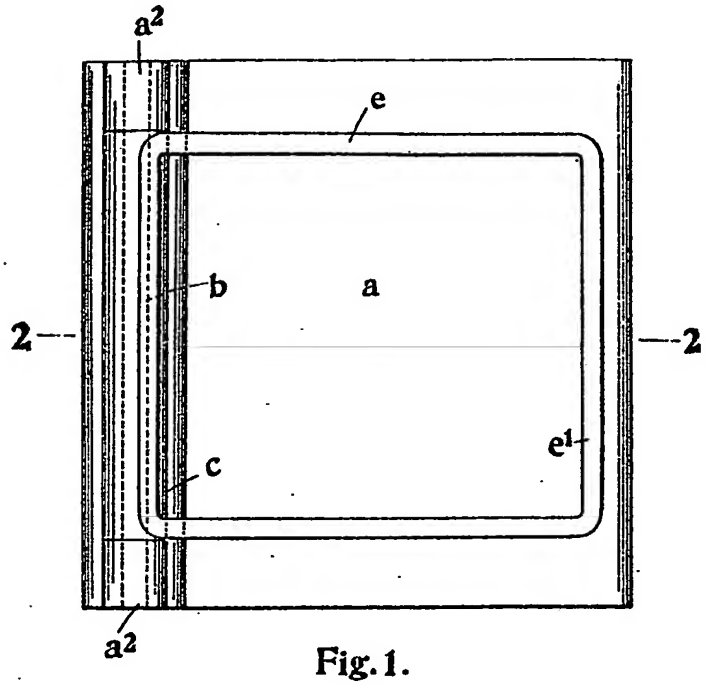

Fig. 1.

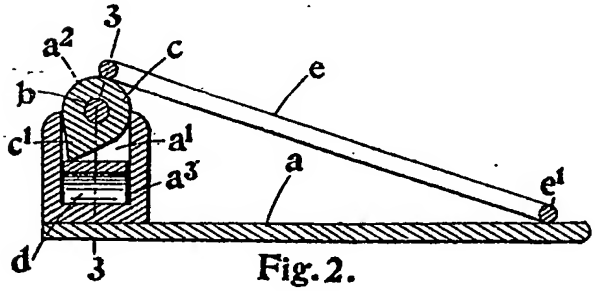

Fig. 2.

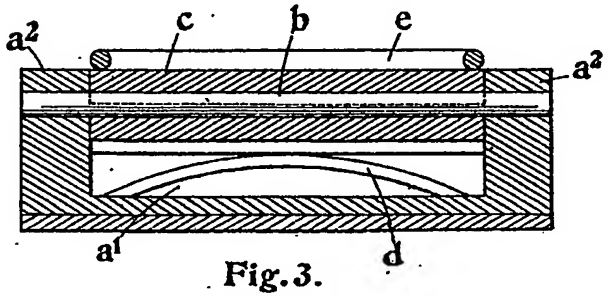

Fig. 3.

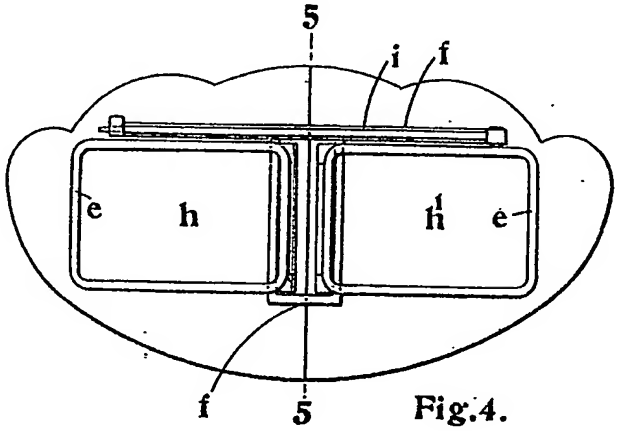

Fig.4.

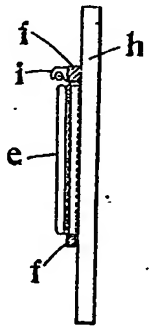

Fig.5.

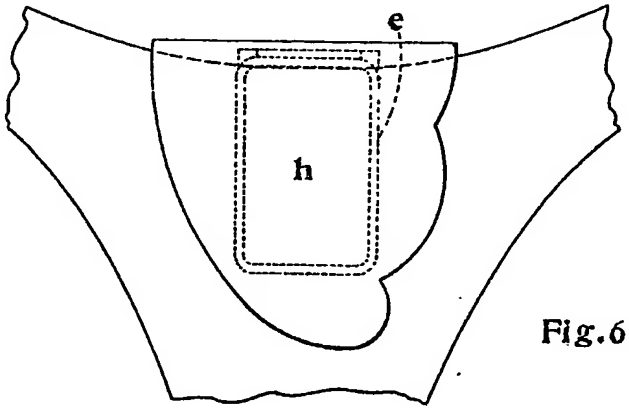

Fig.6.

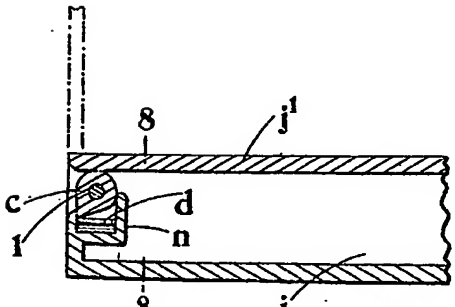

Fig.7.

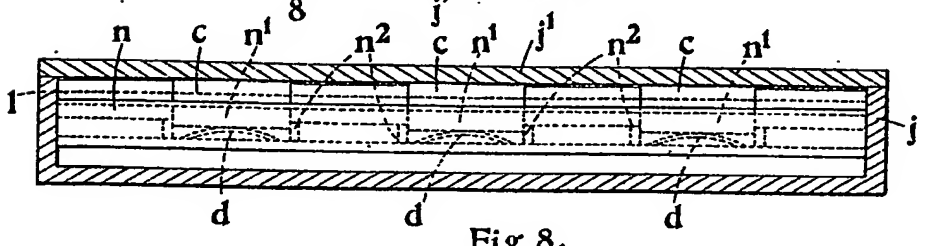

Fig.8.

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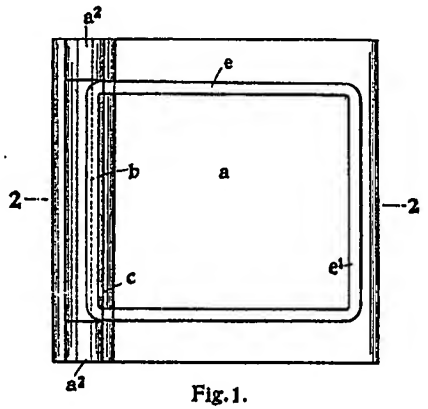

Fig.1.

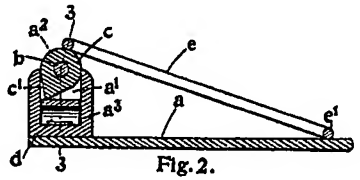

Fig.2.

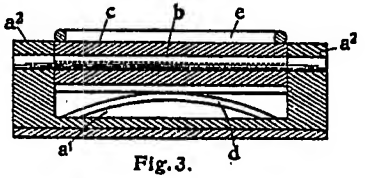

Fig.3.

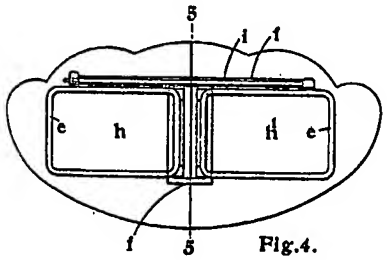

Fig.4.

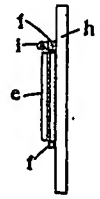

Fig.5.

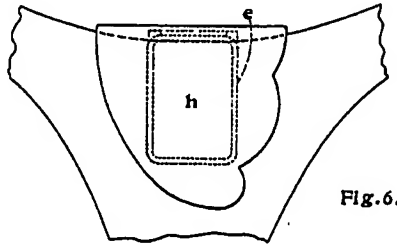

Fig.6.

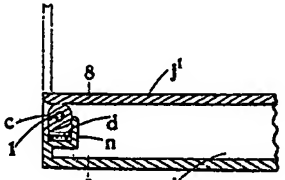

Fig.7.

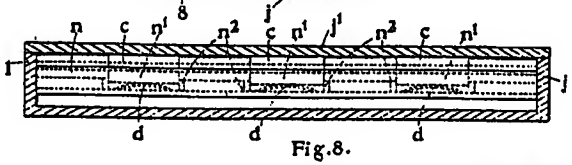

Fig.8.

Malby & Sons, Photo-Lith.